

IN THE CLAIMS:

— Please enter the following amended claims:

- Sub E
1. (Amended) An ink cartridge for a printing apparatus providing ink to a print head through a tapered ink supply needle and removably attached to the print head, comprising:
- an ink chamber for containing ink;
  - an ink supply port for supplying ink from said ink chamber to the print head of the printing apparatus, said ink supply port comprising an external opening;
  - a packing member provided in said ink supply port, forming an ink channel for allowing a flow of ink, said packing member sealing the ink supply needle of the printing apparatus by fitting therewith; and
  - a valve device contained in said ink supply port elastically abutting against said packing member, said valve device selectively opening and closing said ink channel in conjunction with the ink supply needle;
- wherein said valve device does not comprise a sphere.
2. (Amended) An ink cartridge for a printing apparatus providing ink to a print head through an ink supply needle and removably attached to the print head, comprising:
- an ink chamber for containing ink;
  - an ink supply port for supplying ink from said ink chamber to the print head of the printing apparatus, said ink supply port comprising an external opening;
  - a packing member provided in said ink supply port, forming an ink channel for allowing a flow of ink, said packing member sealing the ink supply needle of the printing apparatus by fitting therewith; and
  - a valve device contained in said ink supply port elastically abutting against said packing member, said valve device selectively opening and closing said ink channel in conjunction with the ink supply needle, said valve device being urged by the ink supply needle of the
- C7 E

AMENDMENT UNDER 37 C.F.R. § 1.111

U.S. Appln. No. 09/437,246

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printing apparatus to open said ink channel at a same time when the ink supply needle is sealed by said packing member;

wherein said valve device does not comprise a sphere.

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E27  
4. (Amended) An ink cartridge for a printing apparatus providing ink to a print head through an ink supply needle and removably attached to the print head, comprising:

an ink chamber for containing ink;

a porous member accommodated in said ink chamber for absorbing ink;

an ink supply port for supplying ink from said ink chamber to the print head of the printing apparatus, said ink supply port comprising an external opening;

a packing member provided in said ink supply port, forming an ink channel for allowing a flow of ink, said packing member sealing the ink supply needle of the printing apparatus by fitting therewith; and

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a valve device contained in said ink supply port elastically abutting against said packing member, said valve device selectively opening and closing said ink channel in conjunction with the ink supply needle;

wherein said valve device does not comprise a sphere.

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C17  
5. (Amended) An ink cartridge for a printing apparatus providing ink to a print head through an ink supply needle and removably attached to the print head, comprising:

an ink chamber for containing ink;

an ink supply port for supplying ink from said ink chamber to the print head of the printing apparatus, said ink supply port comprising an external opening;

a packing member provided in said ink supply port, forming an ink channel for allowing a flow of ink, said packing member sealing the ink supply needle of the printing apparatus by fitting therewith, said packing member comprising a hole and a protruding rim surrounding said hole; and

*Amend. Sub E1*  
valve device contained in said ink supply port elastically abutting against said protruding rim of said packing member, said valve device selectively opening and closing said ink channel in conjunction with the ink supply needle.

*Sub E6*  
10. (Amended) An ink cartridge as set forth in any one of claims 1, 2, 4, or 5, wherein said valve device comprises:

- A18*
- a valve member selectively contacting with a surface of said packing member, said valve member being forced by the ink supply needle of the printing apparatus when the ink cartridge is mounted on the printing apparatus; and
  - an elastic member always urging said valve member toward said packing member.

*Sub E7*  
27. (Amended) An ink cartridge for a printing apparatus providing ink to a print head through an ink supply needle and removably attached to the print head, comprising:

- A19*
- an ink chamber for containing ink;
  - an ink supply port for supplying ink from said ink chamber to the print head of the printing apparatus, said ink supply port comprising an external opening;
  - a packing member provided in said ink supply port, forming an ink channel for allowing a flow of ink, said packing member sealing the ink supply needle of the printing apparatus by fitting therewith; and
  - a valve device contained in said ink supply port elastically abutting against said packing member, said valve device selectively opening and closing said ink channel in conjunction with the ink supply needle, said valve device comprising:
    - a valve body contacting with said packing member and urged by the ink supply needle of the printing apparatus to open said ink channel when the ink cartridge is mounted on the printing apparatus, and
    - a guide body for guiding said valve body to slide substantially vertically with respect to said packing member;

Sub E7  
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wherein said guide body comprises:

an axial portion being connected to said valve body, and  
a guide block formed at an end of said axial portion opposite to said valve body, said  
guide block guiding said valve body to slide substantially vertically with respect to  
said packing member; and

wherein said guide body is made of an elastic material and formed with a groove extending  
from said guide block through said axial portion.

Sub E8  
A20  
29. (Amended) An ink cartridge for a printing apparatus providing ink to a print head through  
an ink supply needle and removably attached to the print head, comprising:

an ink chamber for containing ink;  
an ink supply port for supplying ink from said ink chamber to the print head of the printing  
apparatus, said ink supply port comprising an external opening;

a packing member provided in said ink supply port, forming an ink channel for allowing a flow  
of ink, said packing member sealing the ink supply needle of the printing apparatus by  
fitting therewith; and

a valve device contained in said ink supply port elastically abutting against said packing  
member, said valve device selectively opening and closing said ink channel in conjunction  
with the ink supply needle, said valve device comprising:

a valve body contacting with said packing member and urged by the ink supply needle of  
the printing apparatus to open said ink channel when the ink cartridge is mounted on  
the printing apparatus, and

a guide body for guiding said valve body to slide substantially vertically with respect to  
said packing member;

wherein said valve body of said valve device comprises a surface, facing said packing member,  
formed with a protruding portion to contact with a tip end of the ink supply needle.

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30. (Amended) An ink cartridge for a printing apparatus providing ink to a print head through an ink supply needle and removably attached to the print head, comprising:

an ink chamber for containing ink;

an ink supply port for supplying ink from said ink chamber to the print head of the printing apparatus, said ink supply port comprising an external opening;

a packing member provided in said ink supply port, forming an ink channel for allowing a flow of ink, said packing member sealing the ink supply needle of the printing apparatus by fitting therewith; and

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Con'd.  
a valve device contained in said ink supply port elastically abutting against said packing member, said valve device selectively opening and closing said ink channel in conjunction with the ink supply needle, said valve device comprising:

a valve body contacting with said packing member and urged by the ink supply needle of the printing apparatus to open said ink channel when the ink cartridge is mounted on the printing apparatus, and

a guide body for guiding said valve body to slide substantially vertically with respect to said packing member;

wherein said valve body of said valve device comprises a surface, facing said packing member, provided with a notch.

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33. (Amended) An ink cartridge as set forth in any one of claims 8 or 9, wherein said valve body of said valve device comprises a surface formed with a spherical surface contacting with said packing member.

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E11  
A22  
36. (Amended) An ink cartridge as set forth in any one of claims 8 or 11, wherein said valve body of said valve device comprises a surface formed with a spherical surface contacting with said packing member, and wherein said spherical surface of said valve device is formed with a flat portion with which the ink supply needle contacts.

*Sub E11 Cont.*  
37. (Amended) An ink cartridge as set forth in any one of claims 1, 2, 4, or 5, wherein said valve device comprises:

- A229 Cont'd.*
- a valve body contacting with said packing member and urged by the ink supply needle of the printing apparatus to open said ink channel when the ink cartridge is mounted on the printing apparatus; and
  - an elastic support portion for supporting said valve body.

38. (Amended) An ink cartridge as set forth in any one of claims 1, 2, 4, 5, 8, or 9, further comprising a packing retainer for retaining said packing member at said external opening of said ink supply port.

*Sub E12*  
46. (Amended) A printing apparatus for ejecting ink on a printing medium, comprising:  
a print head;

a tapered ink supply needle; and

an ink cartridge capable of communicating with said print head through said tapered ink supply needle and removably attached to said print head,  
said ink cartridge comprising:

*A23*  
an ink chamber for containing ink;

an ink supply port for supplying ink from said ink chamber to the print head of the printing apparatus, said ink supply port comprising an external opening;

a packing member provided in said ink supply port, forming an ink channel for allowing a flow of ink, said packing member sealing the ink supply needle of the printing apparatus by fitting therewith; and

a non-spherical valve device contained in said ink supply port elastically abutting against said packing member, said valve device selectively opening and closing said ink channel in conjunction with the ink supply needle.